



## Running energy efficiency programmes in schools in Wales

### Introduction

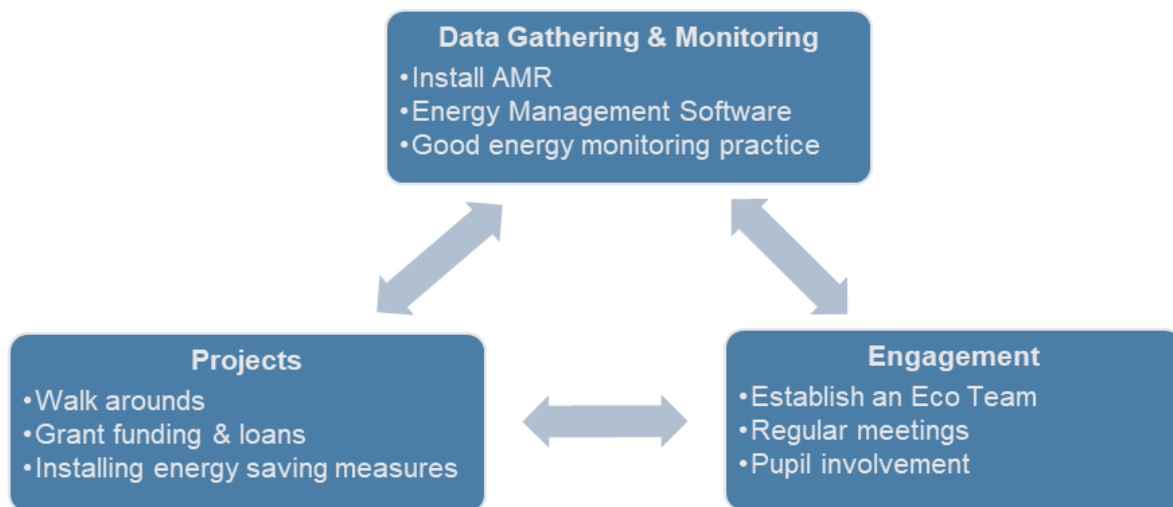
The purpose of this guidance document is to outline the key benefits of running energy efficiency programmes in Welsh schools, to highlight the main features of successful programmes and the support available to assist in implementation.

### Why run energy efficiency programmes in schools?

The Welsh Government declared a Climate Emergency in 2019, committing public sector buildings to be net zero by 2030. As rising utility bills squeeze already stretched budgets, tackling energy efficiency and decarbonisation within schools is an increasingly pressing issue.

In addition to saving money and reducing carbon emissions, embedding energy efficiency processes within a school environment has many benefits including educational opportunities, a reputational boost and improvements to both comfort and aesthetics.

Successful energy efficiency programmes in educational settings cover a broad range of activities including engaging students in analysing school energy consumption data, competitive “Switch-Off” campaigns, and identifying opportunities for reducing the school’s carbon footprint. The three key pillars of an energy efficiency programme in schools are shown below.





## Data gathering and monitoring

When beginning a decarbonisation programme, good-quality data is the first place to start. Those involved in school energy efficiency programmes consistently note that installing Automatic Meter Reading (AMR) technology is the most important first step. These meters log and transfer half-hourly (HH) consumption data, and when paired with the correct software can enable analysis of detailed energy consumption information including user-friendly impact dashboards.

This allows staff to identify areas of utility waste – essential in assessing the potential for various Energy Saving Measures (ESMs), such as building fabric insulation, LED lighting and solar photovoltaic (PV) systems. Good quality data is also needed to verify that savings are being made after programme completion.

Once AMR meters have been installed, consumption data is available online in an easy-to-understand format. Such systems are available with training and ad-hoc support, and many include educational resources for integration into curriculums. Council energy teams can also support schools to establish good energy monitoring practices.

**Key Challenge:** Poor quality energy data.

**Solution:** Install AMR, set up Energy Management Software, establish good energy monitoring practices.

## Engagement

When Stakeholder engagement is crucial to delivering a successful Energy Efficiency programme. Schools should begin by establishing an Eco Team comprised of key staff from the school and local authority who will take ownership of the programme and drive progress.

Core members of this team should be the School Business and Site Managers, and an officer from the Local Authority Energy Team.

Early engagement between these parties helps establish a good level of trust and collaboration. This is especially important for council officers as they have far greater credibility when promoting projects where there is a pre-existing relationship. Communication should be maintained via quarterly or half-yearly meetings involving a senior member of the school leadership team.

### Student engagement

Student involvement in the process is also vitally important. Many successful programmes find that a presentation delivered at a school assembly is very effective. This can cover climate change, energy management, and what can be done directly by pupils to help. Energy focused lessons using data from the school's AMR can then follow. Climate change is now explicitly part of the Curriculum for Wales, and this process can support teachers to develop lessons examining these issues.

Schools have also had success using energy saving competitions. One such competition, "Switch-off Fortnight", invited children to identify energy-using appliances in a section of the school, and to ensure these were switched off when not in use. Students then presented their work and earned small rewards for saving energy. Pupils enjoy having the opportunity to lead on sustainability issues.

Aligning action with a national programme, such as Wales Climate Week, can provide additional benefits and impetus for action.



There are several national and international programmes aimed at encouraging schools to become net zero, such as Eco-Schools, which is run in Wales by Keep Wales Tidy, and the Climate Challenge Cymru for schools.

**Key Challenge:** Identifying resource within a council or school.

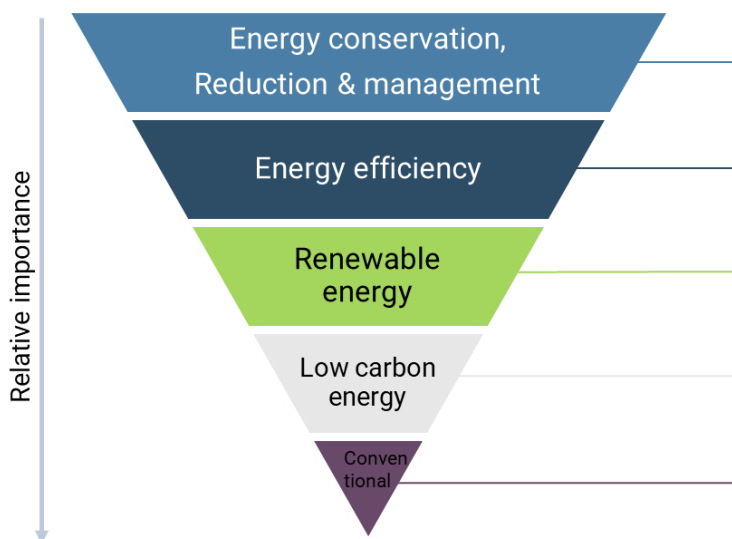
**Solution:** Early engagement ahead of commencing a scheme. Build and maintain relationships and communication.

### Projects and programmes of work

On-site energy efficiency projects are a core aspect of an Energy Efficiency programme. These need to be scoped and a business case developed, stating who is responsible for each action, where the funding will come from, and communicating the action plan and the programme of works to the school.

### Options appraisal

Once all relevant information is collected, a tailored option appraisal of relevant energy and carbon reduction activities can be conducted. The avoidance of energy consumption should be of the highest priority and offsetting activities (such as purchasing green electricity) the lowest. All energy-relevant activities should be reviewed.



#### Leaner

Thermal insulation, air tightness, passive design, EnMS, Controls

#### Keener

Efficiency equipment, efficiency systems, efficient appliances

#### Greener

Solar PV, solar thermal, wind, geothermal, sustainable biomass, on-site, off-site

#### Cleaner

Energy networks, heat pumps, co-generation, hydrogen

#### Last resort

Use of fossil fuels, offset to compensate

### Identifying energy efficiency projects

Projects can be identified by undertaking an Eco Team walk around or energy audit, during which the team should view as many areas as practical within the school, noting energy usage and querying for example the following:

- What equipment is on site? What is switched on, or on standby?
- How are time switches (e.g., for lighting or heating) set up?
- Is any technology old and in need of replacement?
- What is the process for switching off on a Friday or end of term?
- What is the general condition of the building fabric and roof?

These walk arounds highlight opportunities for energy saving behavioural or capital investment projects.



### Examples of Energy Saving Measures appropriate to schools

- Roof-mounted solar PV panels
- Battery Storage
- LED lighting and controls
- Building Management Systems (BMS)
- Heat pumps to replace fossil fuel heating
- Loft, cavity, or external wall insulation
- Double glazing
- Window blinds
- Draught proofing

### Project funding

Aside from local authority and school capital funding, a range of loan and grant funding schemes are available to Councils. The [Wales Funding Programme](#) allows schools to implement energy saving measures by taking out a low interest loan, which is then repaid over a period of around 10 years using the energy savings created by the project. Schools can also retain up to 25% of the annual energy savings – an immediate financial benefit. Such schemes can be combined with Energy Performance Contracting Frameworks, such as [RE:FIT](#), where schools can receive guarantees covering the energy savings of installed technologies.

Specific schemes for low carbon heat and energy efficiency improvements in schools are also available such as the [Low Carbon Heat Grant](#).

If the local authority has to provide the funding, they can consider using their own dedicated capital, use the [Public Works Loan Board](#) (PWLB), use the [Wales Funding Programme](#) (WFP), or apply for third party funding (such as third-party grants).

All available options should be assessed financially and considered on a project by project basis, as various funding mechanisms may be available depending on the technology proposed.

**“The Wales Funding Programme is a win-win situation for the school as there is no capital outlay required to replace inefficient technologies with a payback of under 8 years. The project energy calculations are all carried out on their behalf with no input required from the school.”**

*- Ceri Williams, Schools Energy Finance Officer, Torfaen County Borough Council*

### Business case

A formal business case can be produced once the package of works, financing and procurement process have been established. This should focus on key aspects of the project, such as:

- A project overview
- An outline of the potential benefits e.g., financial and carbon savings, comfort and aesthetic improvements, warranties and maintenance benefits
- Details of estimated project spend
- Project timescales
- Key elements of the procurement approach, e.g., repayment criteria for a Wales Funding Programme scheme
- Potential cost changes and other major project risks

The Council’s Energy Team should support the development of the business case and provide examples of successful projects from the Authority area or beyond. The Eco Team can also contact the Welsh Government Energy Service for support and advice.

**Key Challenge:** Devolved budgets, securing funding when decarbonisation doesn’t translate into utility savings.

**Solution:** Package multiple Energy Saving Measures to ensure overall saving to the school.



## Communication

Early engagement of decision makers is crucial. A message from the Eco Team to senior management at the school and the council advising that a project is being developed ensures stakeholder buy-in throughout the process.

Smooth installation of the Energy Saving Measures on site relies on early and clear communication between the appointed contractor, the school and relevant Council team(s). The most successful relationships occur when local contractors with good site knowledge are utilised, and this should be considered at the earliest procurement stage.

## Summary

Establishing trust and maintaining long-term working relationships between key staff at schools and the relevant Council Officers and team(s) is key to implementing an effective programme.

Obtaining good energy data with fit for purpose monitoring processes is essential.

Pupils are keen to be involved, and energy efficiency programmes can be a powerful tool in delivering the curriculum.

Where programmes are well planned and take a whole school approach, revenue savings can be realised with no school funded capital outlay.

Councils can provide powerful support to help drive energy efficiency in schools.

Schools can make a real impact by implementing changes.

**Find out more about how the Welsh Government Energy Service can help your community enterprise or public sector organisation:**

Website: [Click here](#) | Email: [enquiries@energyservice.wales](mailto:enquiries@energyservice.wales)

 [@energyservice](#) |  [welsh-government-energy-service](#)

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